

What is claimed is:

1. A method of forming a surface micromachined MEMS device, the method  
5 comprising:  
    providing a substrate;  
    applying an insulator on the substrate; and  
    depositing a conductive path on the insulator, the conductive path being  
capable of transmitting an electronic signal between two points on the MEMS  
10 device, the insulator electrically isolating the conductive path from the substrate,  
the MEMS device being free of semiconductor junctions formed by the substrate  
and the conductive path.
2. The method as defined by claim 1 further comprising:  
15 forming circuitry and structure, the circuitry and structure being the two  
points; and  
    connecting the conductive path between the circuitry and the structure.
3. The method as defined by claim 2 wherein the structure is electrically  
20 isolated from the substrate.
4. The method as defined by claim 1 further comprising:  
    applying an additional insulator above the conductive path;  
    depositing an additional conductive path to the additional insulator, the  
25 conductive path and the additional conductive path being in different planes of  
the MEMS device.

5. The method as defined by claim 1 further comprising electrically connecting the conductive path and additional conductive path with a connector, the connector being one of a via and a staple.
- 5 6. The method as defined by claim 1 wherein the insulator spaces the conductive path from the substrate.
7. The method as defined by claim 1 wherein the substrate is free of embedded electrodes.
- 10 8. The method as defined by claim 1 wherein the conductive path comprises polysilicon.
9. A MEMS device formed by the process of claim 1.
- 15 10. A MEMS device comprising:  
a substrate;  
movable structure supported by the substrate;  
circuitry supported by the substrate; and  
20 a conductive path between the movable structure and the circuitry, the conductive path being electrically isolated from the substrate, the conductive path being formed within the MEMS device by surface micromachined processes,  
the MEMS device being free of semiconductor junctions formed by the  
25 substrate and the conductive path.
11. The MEMS device as defined by claim 10 wherein the movable structure includes one of accelerometer and gyroscope structure.

12. The MEMS device as defined by claim 10 further including an insulator deposited on the substrate, the insulator electrically isolating the conductive path from the substrate.

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13. The MEMS device as defined by claim 10 further including a first insulator layer on the substrate, the conductive path being formed on the first insulator layer, the MEMS device further having a second insulator layer over the conductive path and an additional conductive path formed on the second  
10 insulator layer, the conductive path and additional conductive path being on different planes of the MEMS device.

14. The MEMS device as defined by claim 10 wherein the first insulator spaces the conductive path from the substrate.

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15. A method of forming a sensor, the method comprising:  
forming an insulator on a substantially intrinsic semiconductor substrate;  
forming a conductive path on the insulator, the insulator being formed  
and the conductive layer being formed by surface micromachining processes, the  
20 insulator electrically isolating the conductive path from the substrate;  
forming circuitry and structure; and  
connecting the conductive path between the circuitry and the structure,  
the conductive path being capable of transmitting an electronic signal between  
the circuitry and the structure.

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16. The method as defined by claim 15 wherein the structure is electrically isolated from the substrate.

17. The method as defined by claim 15 wherein the MEMS device is free of semiconductor junctions formed by the substrate and the conductive path.
18. The method as defined by claim 15 further comprising:  
5       applying an additional insulator above the conductive path; and  
          depositing an additional conductive path to the additional insulator, the additional conductive path and the conductive path being in different planes of the MEMS device.
- 10   19. The method as defined by claim 15 wherein the insulator is an oxide having a thickness that spaces the substrate and conductive path to a given spacing, the given spacing being between about 0.15 microns and 1.5 microns.
20. A sensor formed by the process of claim 15.